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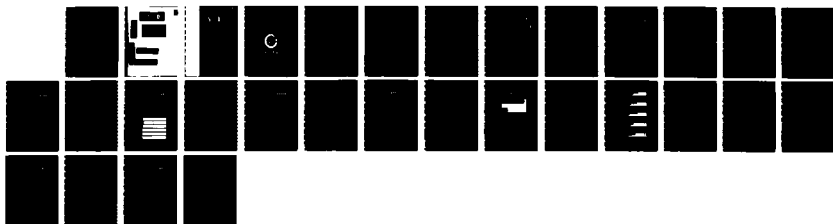
AIR FORCE INTEGRATED READINESS MEASUREMENT SYSTEM
(AFIRMS) AFIRMS FILM REPORT PRODUCTS(U) SOFTECH INC
ALEXANDRIA VA 10 JAN 83 F49642-82-C-0045

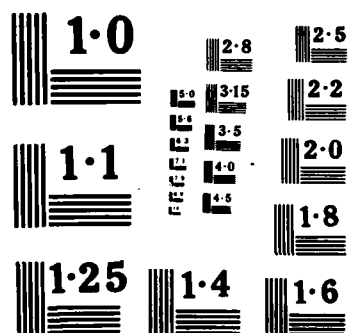
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Air Force Integrated Readiness
Measurement System
(AFIRMS)

Final
AFIRMS FILM REPORT PRODUCTS

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will be in black and
white"



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AUG 04 1986
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Air Force Integrated Readiness
Measurement System
(AFIRMS)

Final
AFIRMS FILM REPORT PRODUCTS

10 January 1983

Prepared by

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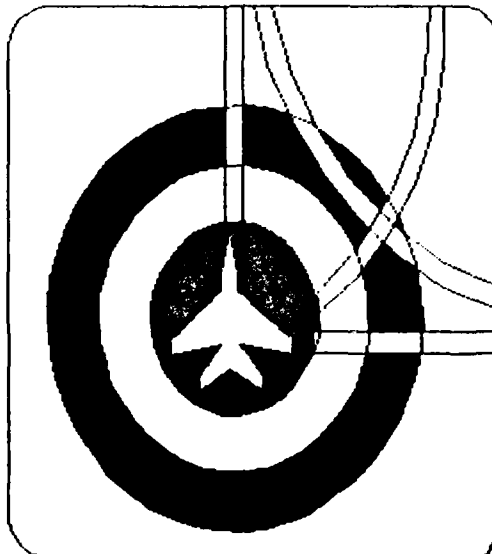
Under Contract
F49642-82-C-0045

CDRL Item - 008

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AFIRMS



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This document presents a selection of example products for illustration of the types of products the AFIRM System may produce. Each example is a representation of a "product type" that may be developed during the AFIRMS's Learning Prototype Phase (LPP). The examples are not and should not be viewed as "real" products. The examples are accompanied by a textual explanation of the purpose of the product and its axis labeling. Additionally, the text presents a list of interpretation aids which help the reader quickly focus on the product's important information.

The charts in this document present information as it would be presented during an interactive session on a graphics terminal. The user would have the ability to substitute his own information in place of default values thus giving the user the option of asking "what if" questions.

Each chart presented to the user would have blocks which could be selected by the user for presentation of more detailed information pertaining to the chart being viewed. This information magnification is accomplished by a leveling concept where selection of a particular block would activate software to present the detailed information selected. In the upper right corner of each chart is a level indicator block showing where in the level structure the information being displayed resides. The highest level of data, i.e., the greatest aggregation, is indicated by a '0' in the level indicator block. More specific levels are denoted in much the same way as subparagraphs in a document. The immediate levels under the top would be shown as 0.1, 0.2, 0.3, 0.4, ..., 0.N. Each of these levels could have lower levels; i.e., level 0.1 could have levels 0.1.1, 0.1.2, ..., 0.1.N. This structure would follow for each lower level chart. A specific example of this concept can be shown by using the first four charts of this document; the XX TFW's response capability for the F-4Es:

- Level 0 - Uncommitted aircraft over time.
- Level 0.1 - Time required to generate all mission capable aircraft for general mission types.
- Level 0.1.1 - Limiting factors in generating aircraft over time for a particular mission type.
- Level 0.2 - Time required to generate all mission capable aircraft using specific munition loads.

The lowest level is bounded by the amount and type of data available on the highest level of aggregation.

Three data items are always eligible for selection to view lower level information on each chart. These are: the tasking and flying schedule used to generate the chart (both located in the upper left corner of the chart) and the date and time of the oldest data used in preparation of the chart (in the lower left portion).

Selection of the lower level charts would be accomplished by use of a light pen to activate the block associated with the desired next level. If the next level required user-supplied information or if there were default values which could be changed by the user, a menu would be displayed for option selection by the user.

While viewing the charts in this document, the reader should keep in mind the fact that the display format was designed for persons who would be using the information on a regular basis. The charts were not designed to be understood by someone without training.

UNCOMMITTED A/C

The purpose of this chart is to display the number of uncommitted aircraft for any given time during the day. The chart would normally be used on a daily basis to brief the Wing Commander; however, it might also be used by the wing operations officer or the training officer to better utilize available aircraft.

The left axis shows the total number of mission capable aircraft available. The range on this axis would be anywhere between 0 to the total number of mission capable aircraft of a particular type within a WING. The lower bound would be no greater than the minimum number of aircraft ready to fly at any time during the day.

The bottom axis shows ZULU time from 1/2 hour prior to the first flight to the time the last aircraft is regenerated. The increments would be by 1/2 hour if the span is six or less hours, 1 hour if the span is less than 12 hours, and by 2 hours if the span is greater than 12 hours.

Prime User: Wing Commander

Type of Use: Crisis, War, Exercise

Purpose: Compare preparation time for different mission types

Default Values:

- 1) Start Time - worst case from previous chart.
- 2) 30 min to reconfigure from training to OCA.
- 3) 30 min to load MK 82s (2 clusters).
- 4) 60 min turn time for A/C landing (not including loading).
- 5) 3 crews capable of changing configurations in each squadron.
- 6) 5 crews for loading munitions.

Length of View: 1 Day maximum

Lower level charts:

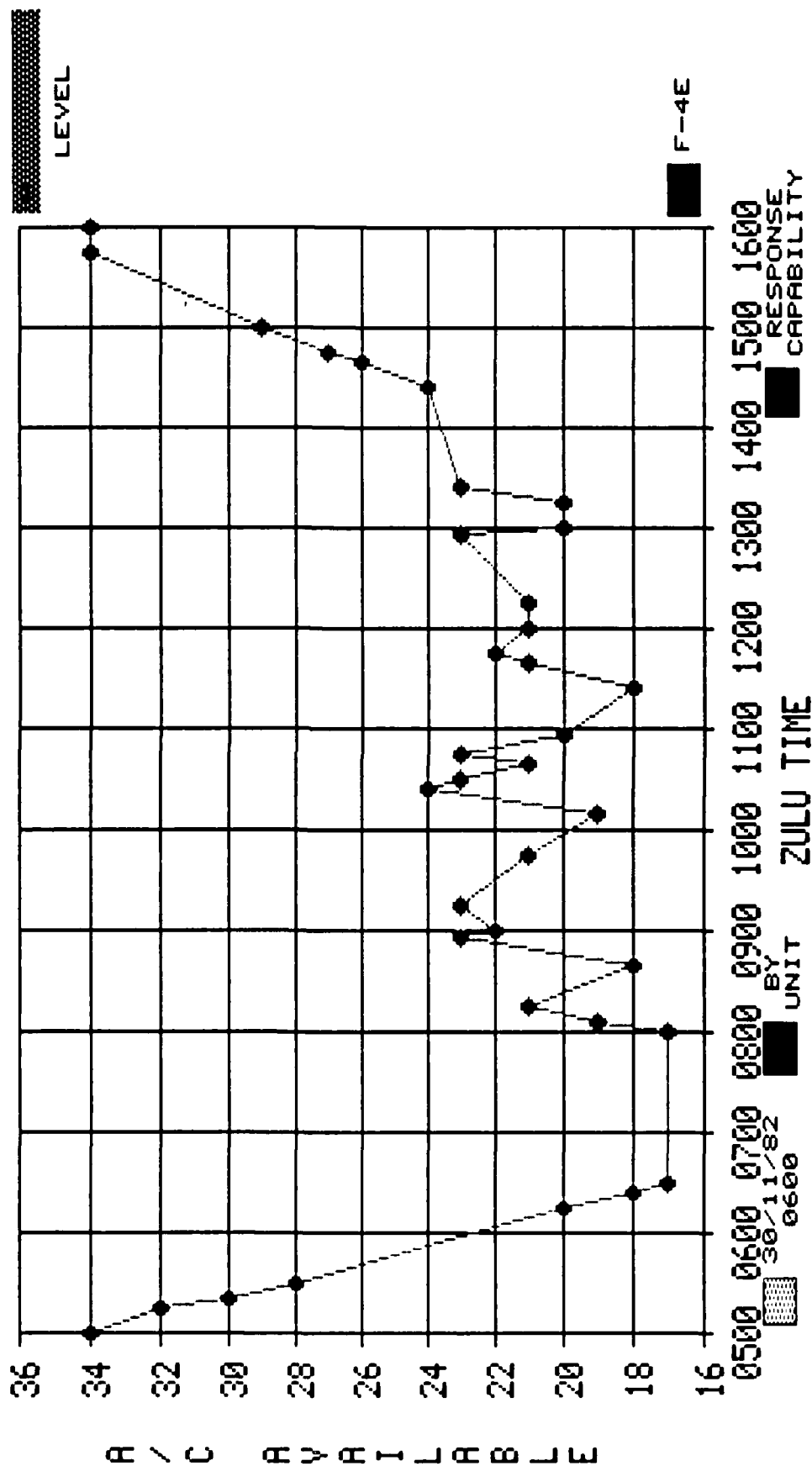
- 1) Tasking - if any
- 2) Schedule
- 3) Oldest data used
- 4) By Unit - squadron breakout
- 5) By Mission Type

TASKING: NONE
 SCHEDULE: DAILY TRAINING

EXAMPLE

30/11/82
 0800

UNCOMMITTED A/C
 (XXX TFW)



EXAMPLE

RESPONSE CAPABILITIES

The purpose of this chart is to show the amount of time needed to generate all available, mission capable aircraft for each mission type. It would be used by the Wing Commander during a crisis, a war, or an exercise. It could also be used by the Wing Commander or his staff for "what if" types of queries.

The left axis shows the total number of prepared aircraft available for a particular mission type. The range of this axis is between 0 and the maximum available mission capable aircraft. The lower bound would be no greater than the least number of prepared aircraft at any time. The upper bound would be no less than the maximum number of aircraft which can be prepared for any of the mission types being compared.

The bottom axis shows ZULU time from the selected (or default) start time to at least the hour where all available aircraft have been prepared for the mission type requiring the greatest preparation time. The chart would not span a time greater than 24 hours. The increments will range between 1/2 hour and 2 hours depending on the time span of the entire chart.

Prime User: Wing Commander

Type of Use: Crisis, War, Exercise

Purpose: Compare preparation time for different mission types.

Default Values:

- 1) Start time - worst case from previous chart.
- 2) 30 min to reconfigure from training to OCA.
- 3) 30 min to load MK 82s (2 clusters).
- 4) 60 min turn time for A/C landing (not including loading).
- 5) 3 crews capable of changing configurations in each squadron.
- 6) 5 crews for loading munitions.

Length of View: 1 Day maximum

Lower level charts:

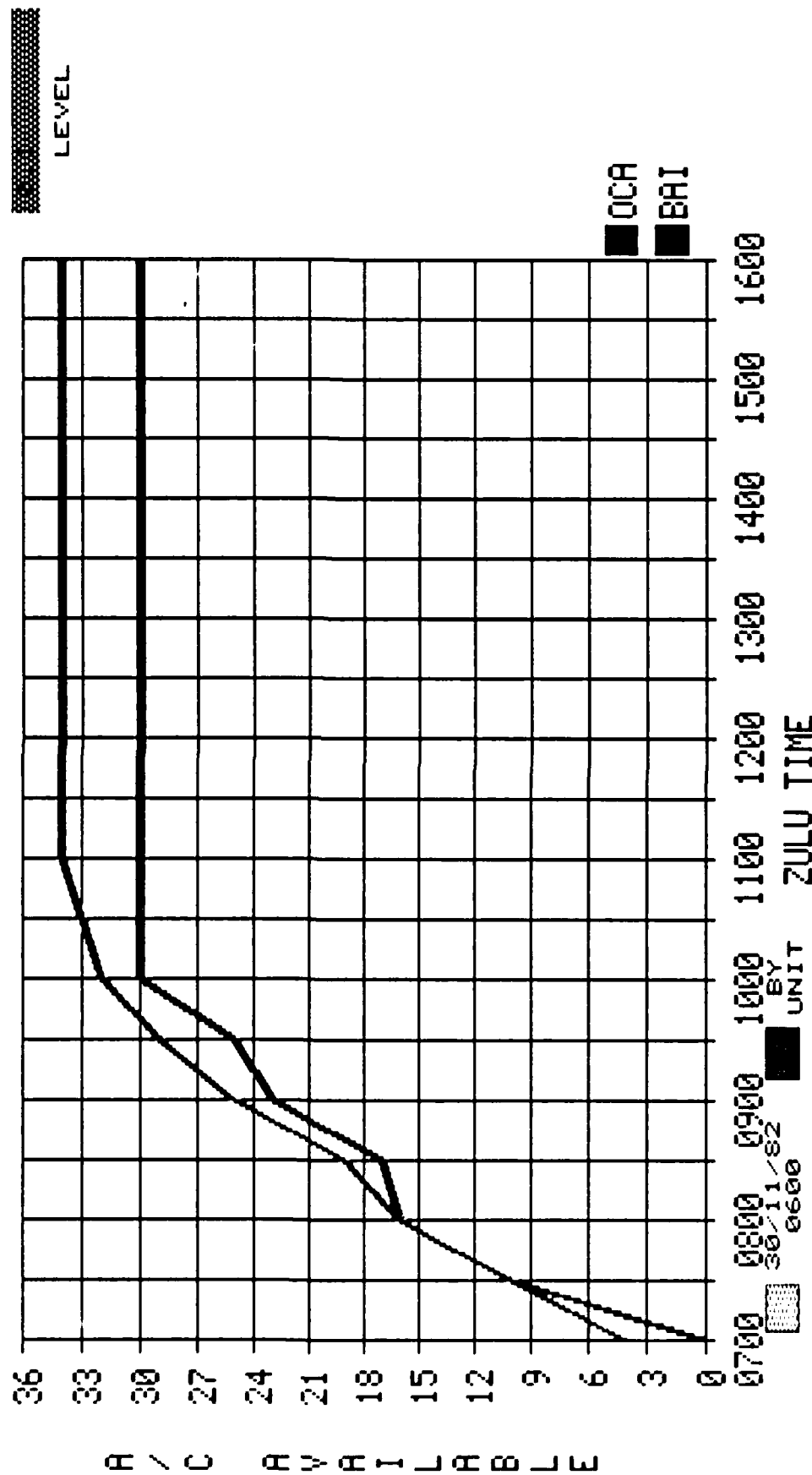
- 1) Tasking - if any
- 2) Schedule
- 3) Oldest data used
- 4) By Unit - squadron breakout
- 5) By Mission Type

TASKING SCHEDULE: NONE
DAILY TRAINING

EXAMPLE

30/11/82
0800

RESPONSE CAPABILITIES (XX TFW F-4E)



EXAMPLE

OCA RESPONSE CAPABILITY

The purpose of this chart is to show the limiting factors, at each point in time, for generating aircraft for a particular mission type. The chart would be used by the Wing Commander during a war, a crisis, or an exercise. It could also be used by Wing Staff for projecting limiting factors in generating aircraft for different missions on a "what if" basis.

The left axis shows the total number of prepared A/C at any given time. The range on this axis would be between 0 to the total number of prepared A/C, of a particular type, for the mission type. The lower bound would be no greater than the minimum number of prepared A/C and the upper bound would be no less than the maximum number of available mission capable A/C to be prepared.

The bottom axis shows ZULU Time from the selected, or default, start time, to a time no less than the time required to generate all A/C but no greater than 24 hours.

The limiting factors are shown by different colors on the line graph and are shown for the time periods for which they are limiting factors. A maximum of 6 limiting factors would be shown at any given time. The limiting factors shown would be those creating the greatest impact on the preparation of A/C for the mission type.

Prime User: Wing Commander

Type of Use: Crisis, War, Exercise, "what if"

Purpose: Show preparation time for particular mission type and limiting factors.

Default Values:

- 1) Start Time - worst case from Uncommitted Capability chart.
- 2) 30 min to reconfigure from training to OCA.
- 3) 30 min to load 2 clusters of MK 82's.
- 4) 60 min turn time for A/C landing (not including loading).
- 5) 3 crews capable of changing configurations in each squadron.
- 6) 5 crews for loading munitions.

Length of View: Maximum of 1 Day

Lower Level Charts:

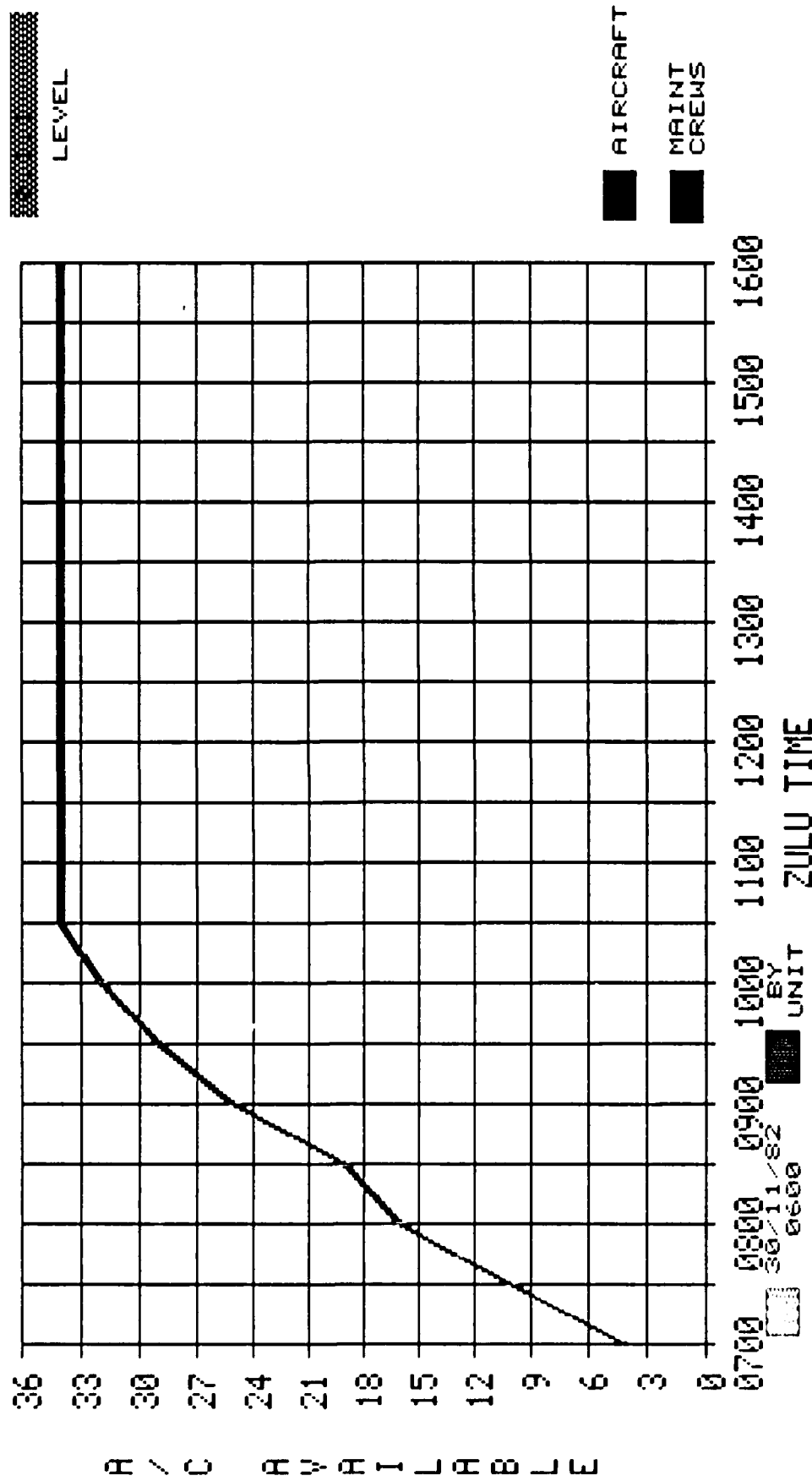
- 1) Tasking - if any
- 2) Schedule
- 3) Oldest data used
- 4) By Unit - squadron breakout
- 5) By Limiting Factor

TASKING: NONE
SCHEDULE: DAILY TRAINING

EXAMPLE

30/11/82
0800

OCA RESPONSE CAPABILITY
(XX TFW F-4E)



EXAMPLE

RESPONSE CAPABILITIES

The purpose of this chart is to show the amount of time needed to generate all available, mission capable aircraft for each mission type. It would be used by the Wing Commander during a crisis, a war, or an exercise. It could also be used by the Wing Commander or his staff for "what if" types of queries.

The left axis shows the total number of prepared aircraft available for a particular mission type. The range of this axis is between 0 and the maximum available mission capable aircraft. The lower bound would be no greater than the least number of prepared aircraft at any time. The upper bound would be no less than the maximum number of aircraft which can be prepared for any of the mission types being compared.

The bottom axis shows ZULU time from the selected (or default) start time to at least the hour where all available aircraft have been prepared for the mission type requiring the greatest preparation time. The chart would not span a time greater than 24 hours. The increments will range between 1/2 hour and 2 hours depending on the time span of the entire chart.

Prime User: Wing Commander

Type of Use: Crisis, War, Exercise

Purpose: Compare preparation time for different mission types.

Default Values:

- 1) Start time - worst case from previous chart.
- 2) 60 min to load AIM-9/AIM-7 configuration (1/2 & 1/2).
- 3) 30 min to load MK 82s (2 clusters).
- 4) 90 min to load MAVERICKS not on rails.

Length of View: 1 Day maximum

Lower level charts:

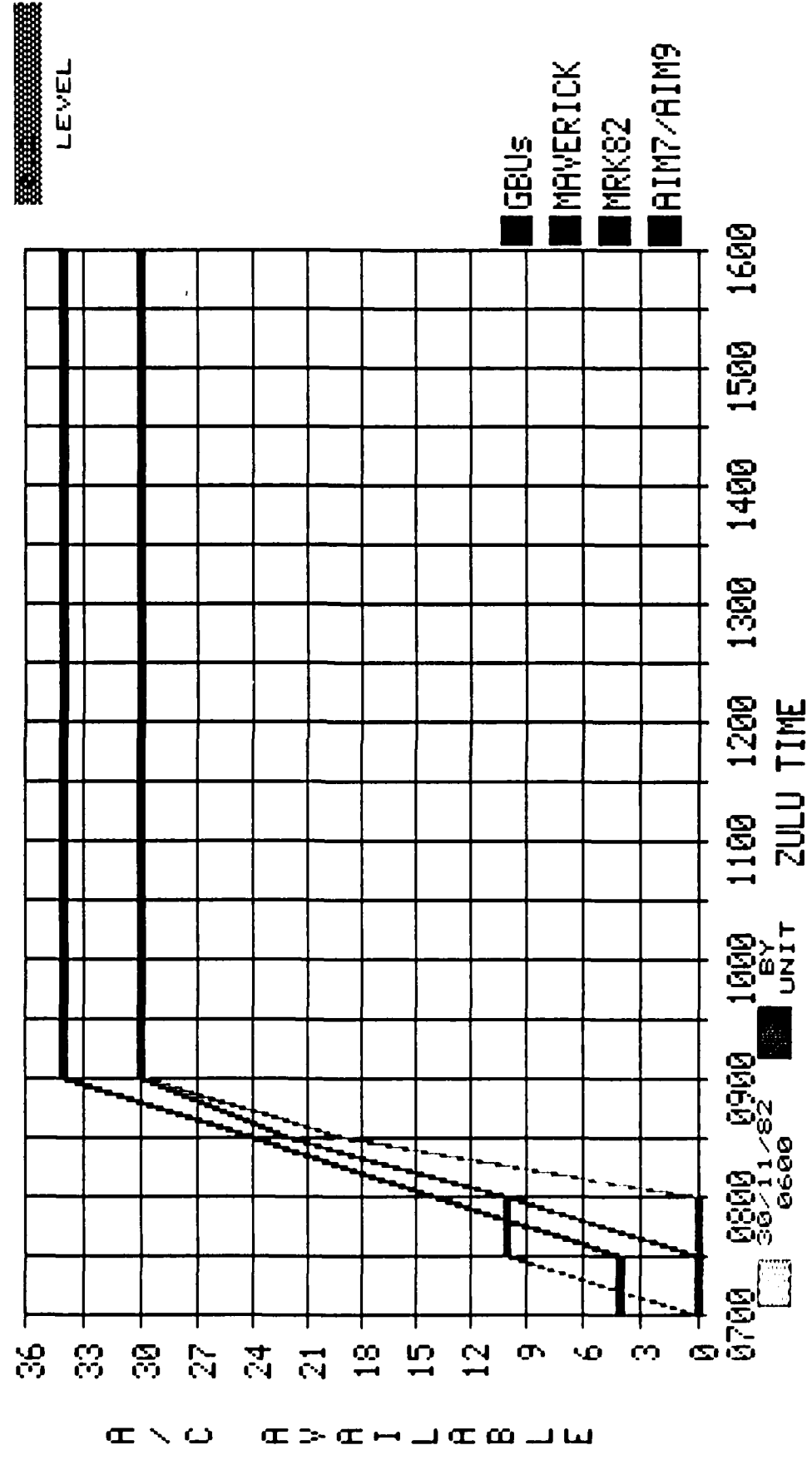
- 1) Tasking - if any
- 2) Schedule
- 3) Oldest data used
- 4) By Unit - squadron breakout
- 5) By Mission Type

TASKING: NONE
 SCHEDULE: DAILY TRAINING

EXAMPLE

30/11/82
 0800

RESPONSE CAPABILITIES
 (XX TFW F-4E)



EXAMPLE

A/C COMMANDER EXPERIENCE

The purpose of this chart is to show the number of experienced versus non-experienced aircraft commanders within a wing. The chart would probably be used by the Wing Commander on a monthly basis to view both historical and projected trends.

The left axis shows the total number of commanders assigned aircraft.

The bottom axis shows the months for the year being shown.

The number shown in each color bar are the number of aircraft commanders experienced or not experienced for that month. The experienced will always be shown in green and the non-experienced in red.

The lower level charts for experienced would show the breakout by aircraft commander. The same is true for the non-experienced level.

Prime User: Wing Commander

Type of Use: Monthly trend analysis

Purpose: Show historical and projected trends in experience/non-experience levels.

Default Values:

1) Start Month - 6 months prior to current month.

Length of View: 12 months maximum

Lower Level Charts:

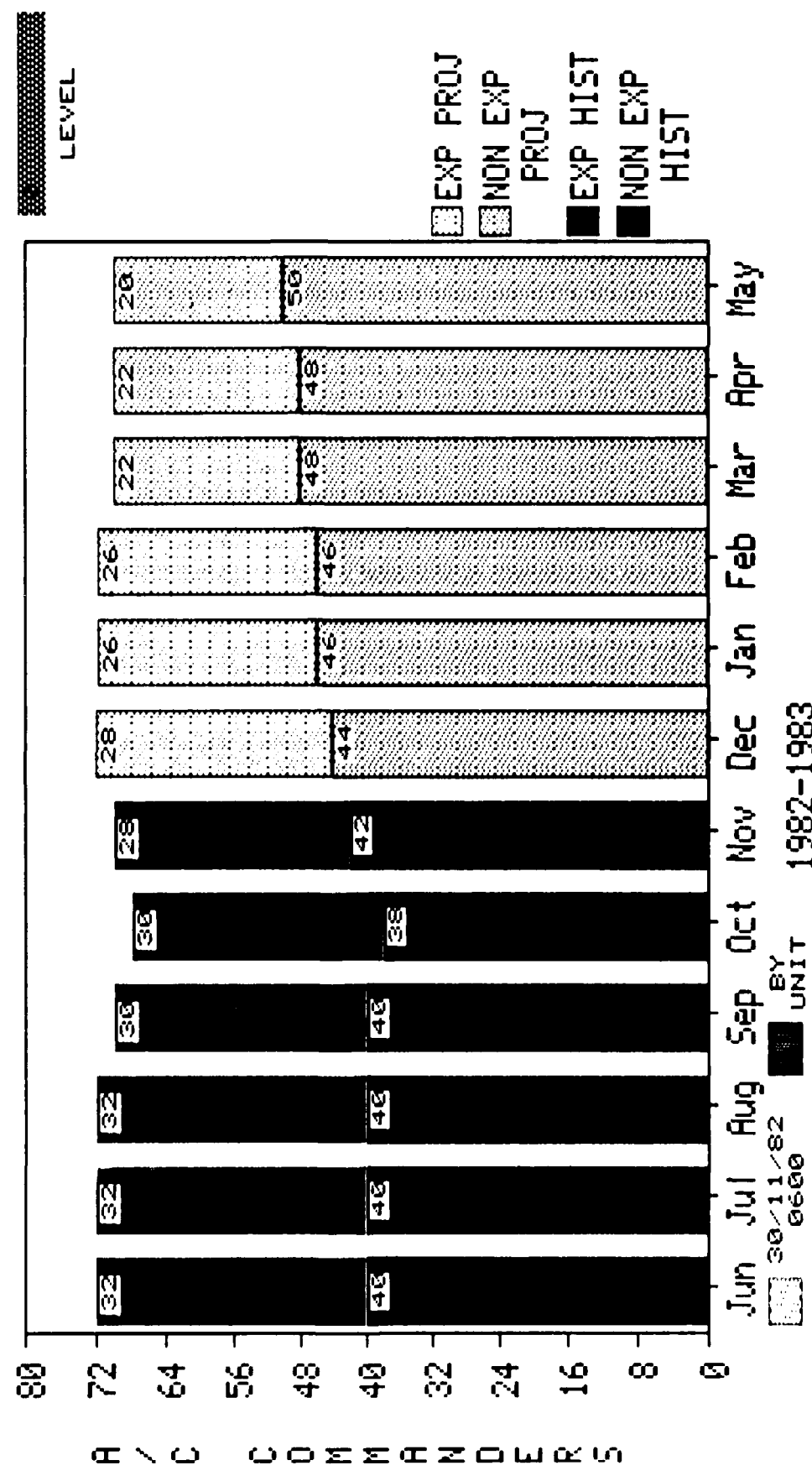
- 1) Tasking - None
- 2) Schedule
- 3) Oldest data used
- 4) By Unit - squadron breakout
- 5) By Experience Levels.

TASKING: NONE
 SCHEDULE: MNTH TRNG PROJ

EXAMPLE

A/C COMMANDER EXPERIENCE
 (XX TFW F-4E)

30/11/82
 0600



EXAMPLE

30/11/82
 0600
 BY UNIT
 1982-1983

AIRCRAFT COMMANDER GCC LEVELS

The purpose of this chart is to show the GCC levels of aircraft commanders for each month. The Wing Commander would use this chart on a monthly basis to view both historical and projected trends.

The left axis shows the total number of aircrews assigned.

The bottom axis shows the months for the year being shown.

The numbers shown in each color bar are the number of aircraft commanders at each GCC level.

The lower level charts for each GCC Level would show the breakout by crew member.

Prime User: Wing Commander

Type of Use: Monthly trend analysis

Purpose: Show historical and projected trends in experience/non-experience levels.

Default Values:

1) Start Month - Six months prior to current month.

Length of View: 12 months maximum

Lower Level Charts:

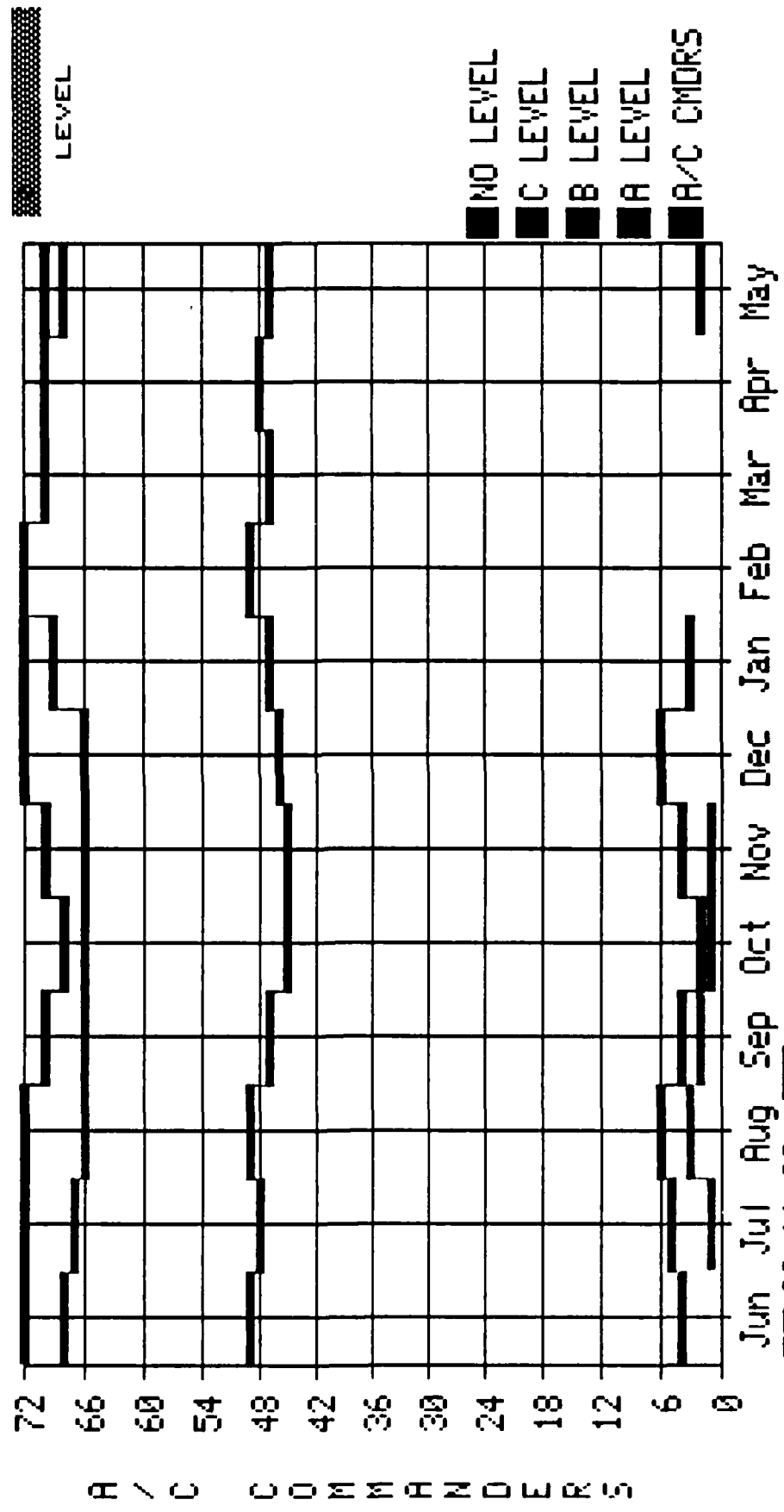
- 1) Tasking - None
- 2) Schedule
- 3) Oldest data used
- 4) By Unit - squadron breakout
- 5) By GCC Levels

TASKING: NONE
SCHEDULE: MONTH TRNG PROJ

EXAMPLE

30/11/82
0000

AC GDC LEVELS
(XX TFW F-4E)



30/11/82
0000
BY UNIT
1982-1983

EXAMPLE

MAJCOM CAPABILITY (5 days)

The purpose of this chart is to show the total number of sorties, projected for a 5 day period, for each weapons system. The chart would be used by a Major Command Mission Director to view the projected sortie capability for 5 days. The projection could be without regard to mission type or if desired, by entering a projected tasking for 5 days, could show the projected mission capability.

The left axis shows the total number of projected sorties.

The bottom axis shows the 5 days being projected. The start date would default to the Monday of the current week.

The A/C types are shown on the right side, color blocks matching the bars on the chart. Any of these could be selected to view the capabilities by type.

At the bottom of the chart are additional blocks which could be selected for different views of the projection.

Prime User: MAJCOM Mission Director

Type of Use: Crisis, War, Exercise

Purpose: Show 5 day projection of sortie capability

Default Values:

- 1) Mission Type - None

Length of View: 5 days

Lower Level Charts:

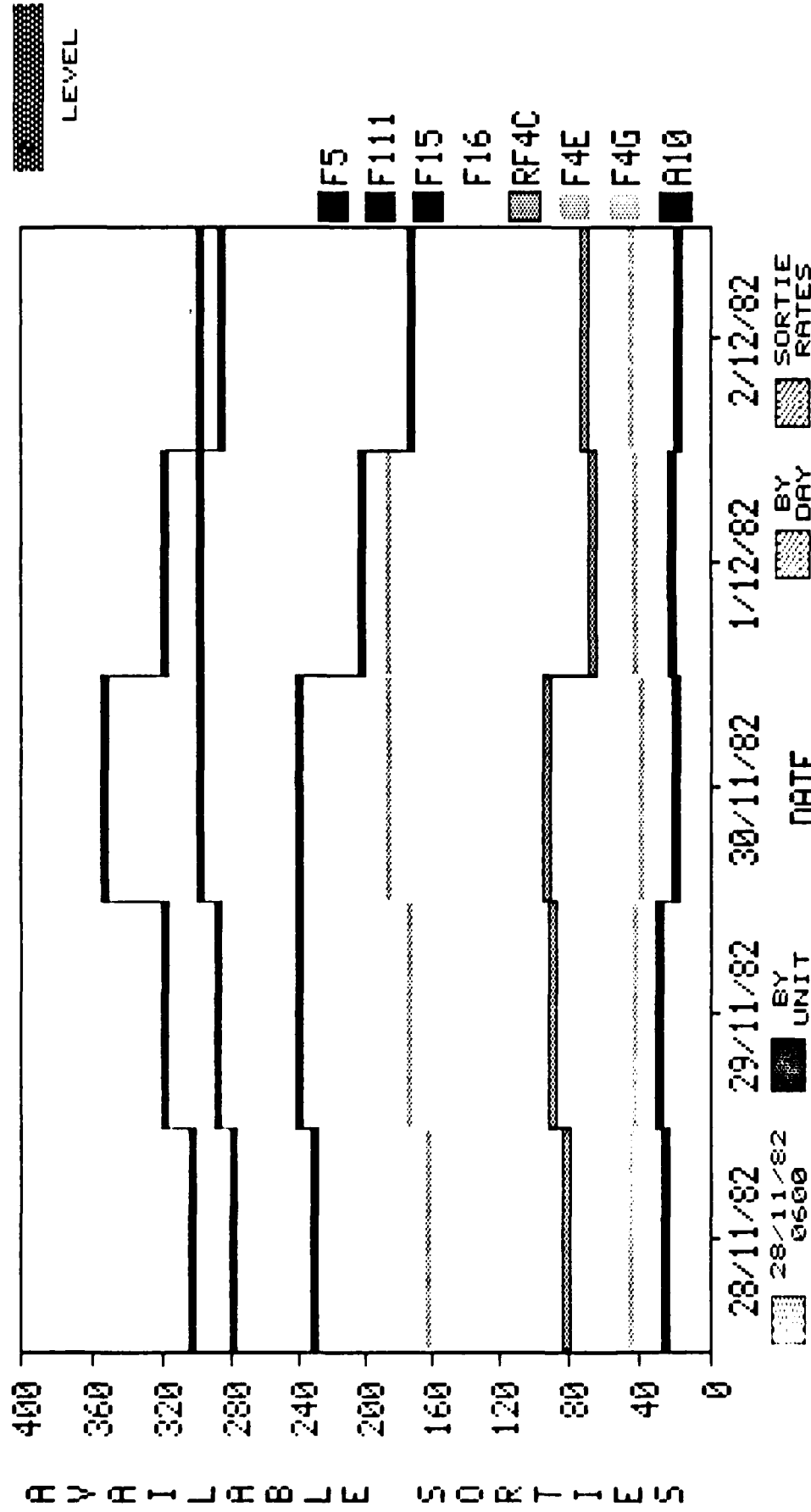
- 1) Tasking - if any
- 2) Schedule - if any
- 3) Oldest data used
- 4) By Unit
- 5) By day
- 6) By A/C type

TASKING: NONE
SCHEDULE: NONE

EXAMPLE

MAJCOM SORTY CAPABILITY 5 DAYS

28/11/82
0800



EXAMPLE

MAJCOM CAPABILITY (DAY)

The purpose of this chart is to show the total number of sorties projected for a particular day for each weapon system. The chart would be used by a Major Command Mission Director to view the projected sortie capability for one day. The projection could be without regard to mission type, or if desired, by entering a projected day's tasking, could show the projected mission capability.

The left axis shows the total number of projected sorties.

The bottom axis shows the day being projected.

The A/C Types are shown on the right side, color blocks matching the bars on the chart. Any of these could be selected to view the capabilities by type.

At the bottom of the chart are additional blocks which could be selected for different views of the projection.

Prime User: MAJCOM Mission Director

Type of Use: Crisis, War, Exercise

Purpose: Show 1 day projection of sortie capability.

Default Values:

- 1) Mission Type - None

Length of View: 5 days

Lower Level Charts:

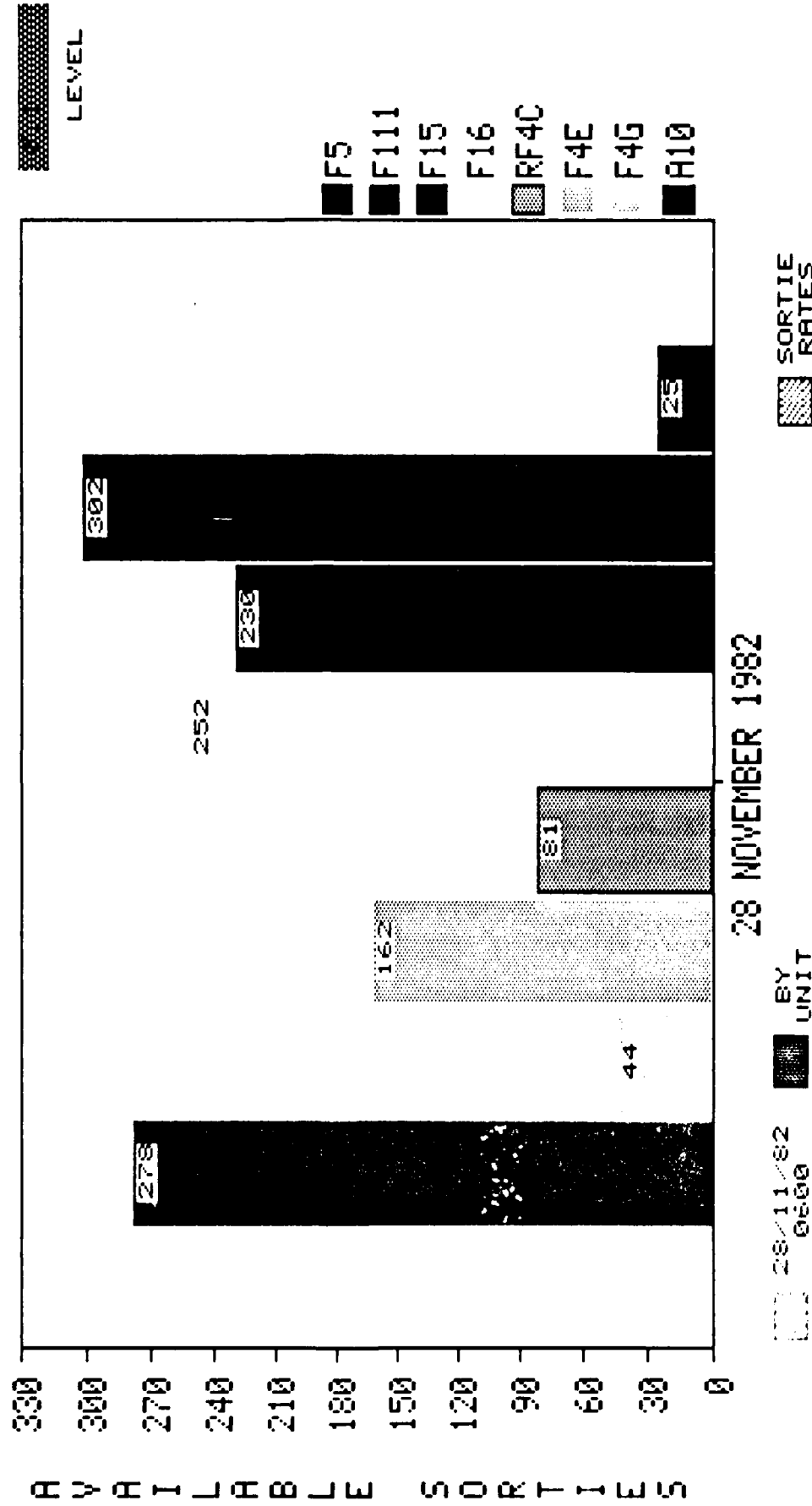
- 1) Tasking - if any
- 2) Schedule - if any
- 3) Oldest data used
- 4) By Unit
- 5) By A/C type

TASKING: NONE
SCHEDULE: NONE

EXAMPLE

MAXIMUM SORTY CAPABILITY 1 DAY

28/11/82
0800



EXAMPLE

MAJCOM SORTIE RATES

The purpose of this chart is to show average sortie rates achieved by each weapon system. The chart would be used by the Mission Director at a Major Command to view the historical and/or projected sortie rates derived from the capability chart.

The left axis shows the sortie rates.

The bottom axis shows the 5 days being shown on the capability chart.

The A/C types are shown on the right and are the same as those shown on the Level 0 chart.

Prime User: MAJCOM Mission Director

Type of Use: Crisis, War, Exercise

Purpose: Show average sortie rates achieved by each A/C type for 5 day period.

Default Values:

- 1) Start Day - Same as level 0 chart.
- 2) Mission Type - Same as level 0 chart.

Lower Level Charts:

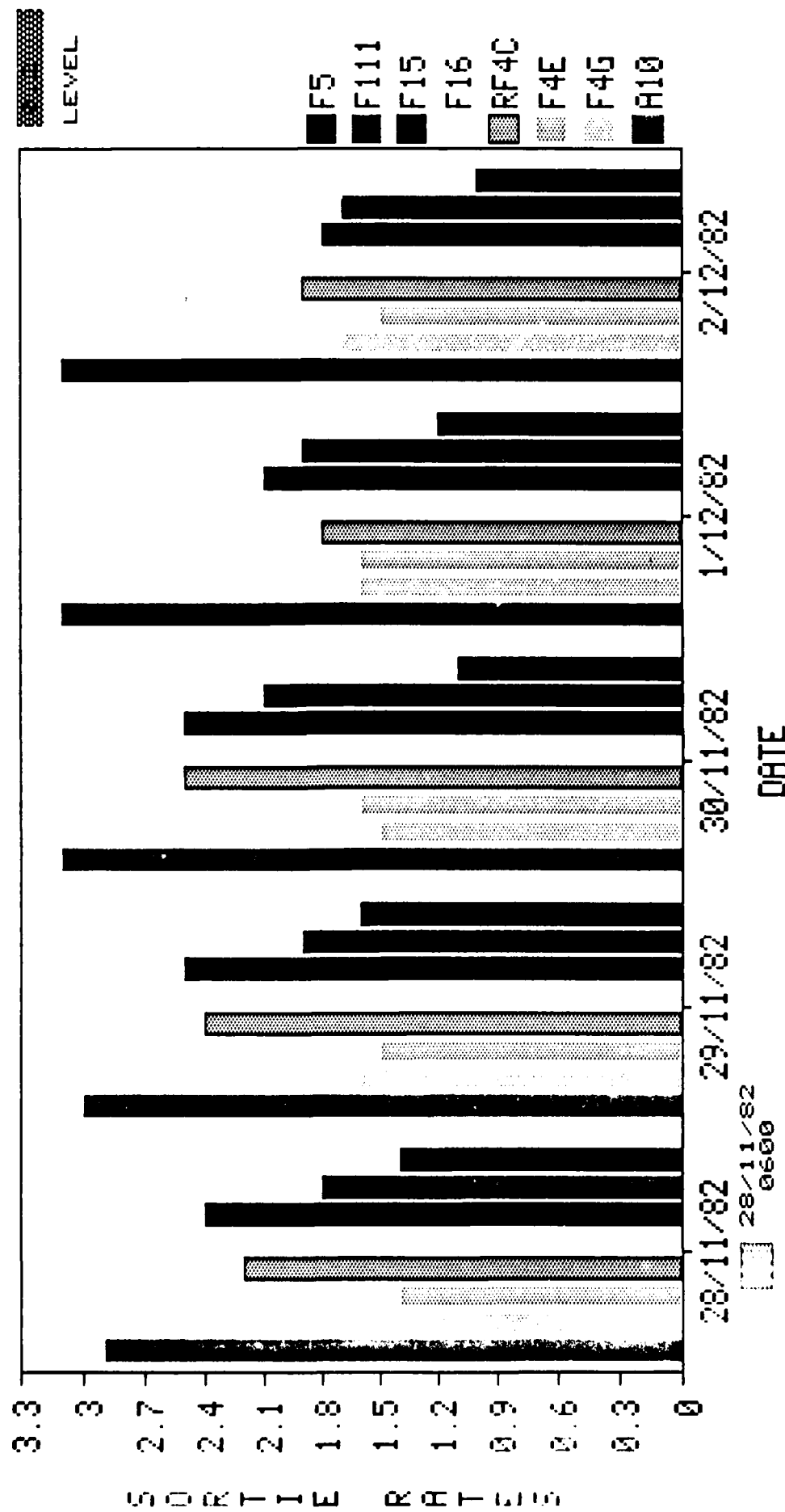
- 1) Tasking - if any
- 2) Schedule - if any
- 3) Oldest data used.

TASKING
SCHEDULE NONE

EXAMPLE

28/11/82
0800

MAJCOM SORTIE RATES (USAFE 5 DAYS)



EXAMPLE

AIRCRAFT SYSTEM MALFUNCTIONS (WORLD WIDE TOTAL)

The purpose of this chart is to show historical and projected trends in system malfunctions causing aircraft to become Non Mission Capable. The chart would be used by the Air Staff on a monthly or quarterly basis to view historical and projected trends in System Malfunctions causing A/C to become Non Mission Capable. This chart shows both the total aggregated number of NMC A/C as well as the total by failure type.

The left axis shows the number of NMC A/C. The range on this axis would be from 0 to an upper bound no lower than the aggregated total of NMC A/C.

The bottom axis shows the quarters of the year being displayed. The first quarter shown would be either a selected starting quarter or the default start date. The chart would always show four quarters.

The systems malfunctioning are shown on the right side of the chart. Any of these could be selected to show a more detailed chart for the selected system.

On the bottom of the chart are blocks which can be selected to show different views of the system malfunctions.

Prime User: Air Staff

Type of Use: Monthly/Quarterly trend analysis

Purpose: Show historical and projected trends in system malfunctions causing A/C to become NMC.

Default Values:

- 1) Start Date: Two Quarters prior to current Quarter.
- 2) Top four system malfunctions shown.

Length of View: 4 Quarters

Lower Level Charts:

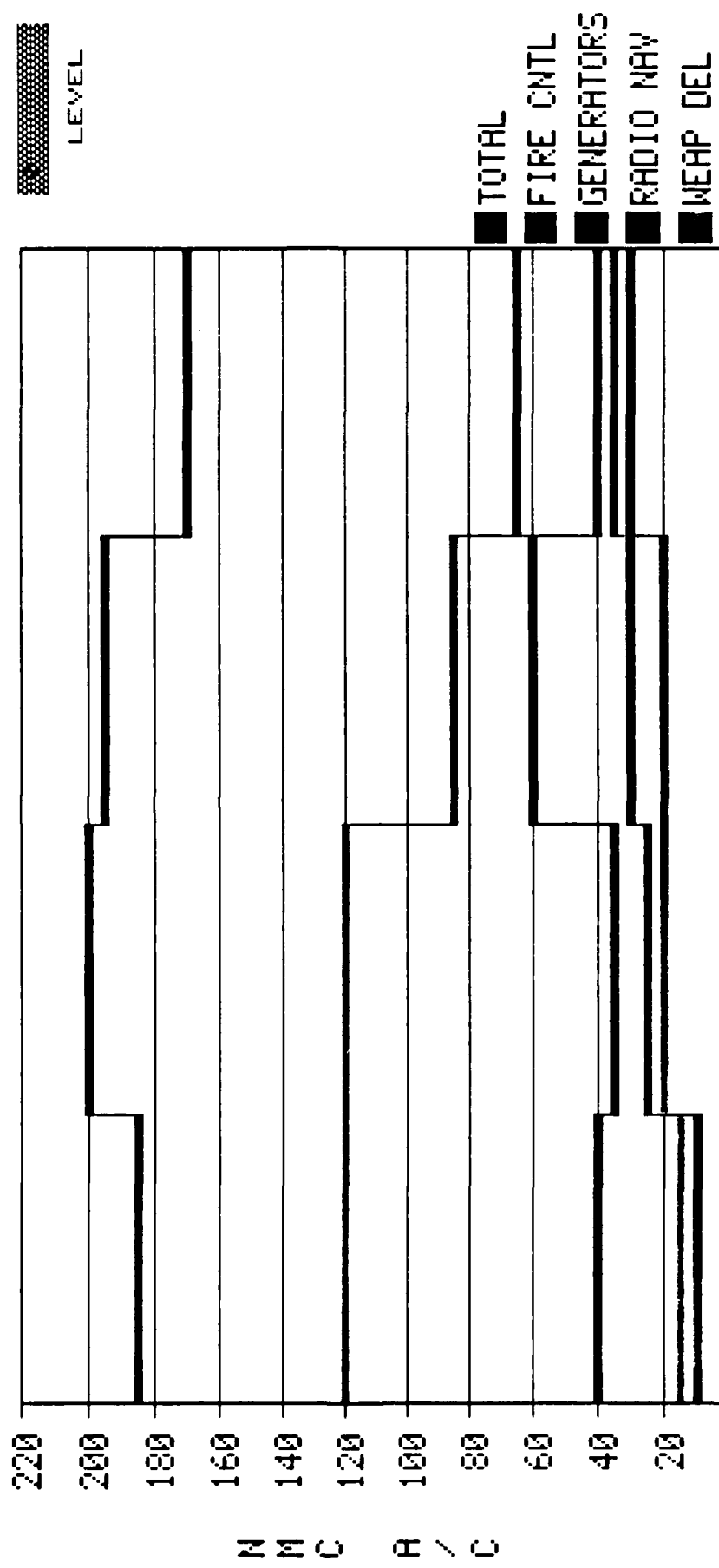
- 1) Tasking - if any
- 2) Schedule - if any
- 3) Oldest Data used
- 4) By MAJCOM
- 5) BY Quarter
- 6) By SYSTEM

TASKING: N A
SCHEDULE: N A

EXAMPLE

01/12/82
0000

F-4E SYSTEM MALFUNCTIONS WORLDWIDE TOTAL



3RD QTR 30/11/82 1650
4TH QTR BY MAJCOM 1982-1983
1ST QTR BY QUARTER
2ND QTR

EXAMPLE

AIRCRAFT SYSTEM MALFUNCTIONS (USAFE TOTAL)

The purpose of this chart is to show historical and projected trends in system malfunctions causing aircraft to become NMC. The view would be of a single MAJCOM. The chart would be used by the Air Staff on a monthly or quarterly basis to view historical and projected trends in System Malfunctions, within a specific MAJOR COMMAND, causing A/C to become Non Mission Capable. This chart shows both the total aggregated number of NMC A/C as well as the total by failure type.

The left axis shows the number of NMC A/C. The range on this axis would be from 0 to an upper bound no lower than the aggregated total of NMC A/C.

The bottom axis shows the quarters of the year being displayed. The first quarter shown would be either a selected starting quarter or the default start date. The chart would always show four quarters.

The systems malfunctioning are shown on the right side of the chart. Any of these could be selected to show a more detailed chart for the selected system.

On the bottom of the chart are blocks which can be selected to show different views of the system malfunctions.

Prime User: Air Staff

Type of Use: Monthly/Quarterly trend analysis

Purpose: Show historical and projected trends in system malfunctions causing A/C to become NMC.

Default Values:

- 1) Start Date: Two Quarters prior to current Quarter.
- 2) Top four system malfunctions shown.

Length of View: 4 Quarters

Lower Level Charts:

- 1) Tasking - if any
- 2) Schedule - if any
- 3) Oldest Data used
- 4) By SYSTEM

TASKING N A
SCHEDULE N A

EXAMPLE

F-4E SYSTEM MALFUNCTIONS USAFE TOTAL

01/12/82
0800



EXAMPLE

AIRCRAFT SYSTEM MALFUNCTIONS (WORLD WIDE BY QUARTER)

This chart would be used by the Air Staff on a monthly or quarterly basis to view historical and projected trends in System Malfunctions causing A/C to become Non Mission Capable. This chart shows both the total aggregated number of NMC A/C as well as the total by failure type.

The left axis shows the number of NMC A/C. The range of this axis would be from 0 to an upper bound no lower than the aggregated total of NMC A/C.

The bottom axis shows the months of the quarter being displayed.

The systems malfunctioning are shown on the right side of the chart. Any of these could be selected to show a more detailed chart for the selected system.

On the bottom of the chart are blocks which can be selected to show different view of the system malfunctions.

Prime User: Air Staff

Type of Use: Monthly/Quarterly trend analysis

Purpose: Show historical and projected trends in system malfunctions causing A/C to become NMC.

Default Values:

- 1) Start Date: First month of selected quarter.
- 2) Top four system malfunctions shown

Length of View: 4 Quarters

Lower Level Charts:

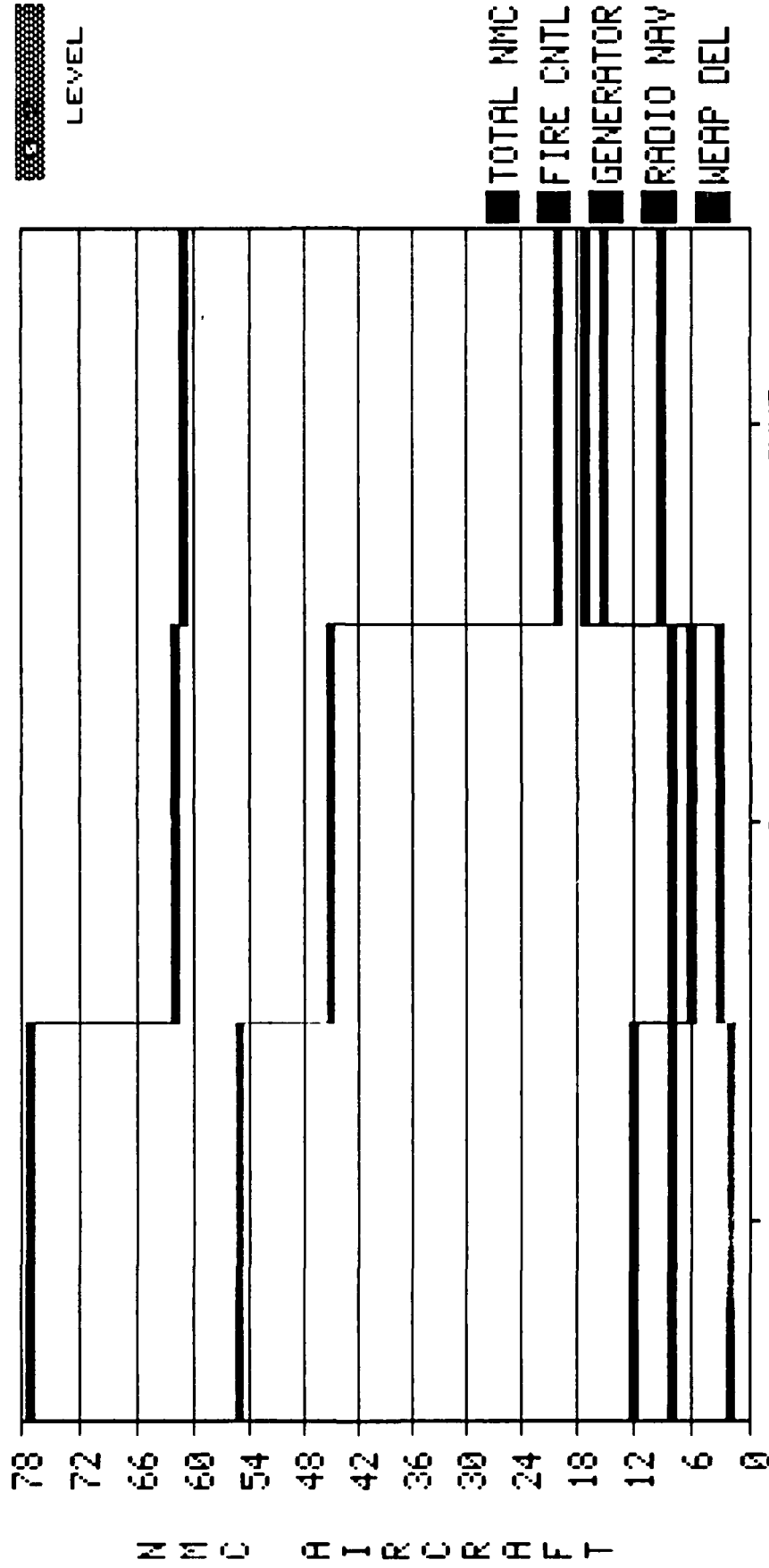
- 1) Tasking - if any
- 2) Schedule - if any
- 3) Oldest Data used
- 4) By MAJCOM
- 5) By SYSTEM

TASKING: N/A
SCHEDULE: N/A

EXAMPLE

01/12/82
0800

F-4E SYSTEM MALFUNCTIONS
WORLDWIDE 2ND QTR



APRIL
30/11/82
1650

MAY
1983 PROJECTION

JUNE
BY MAJCOM

EXAMPLE

END

DTIC

9-86